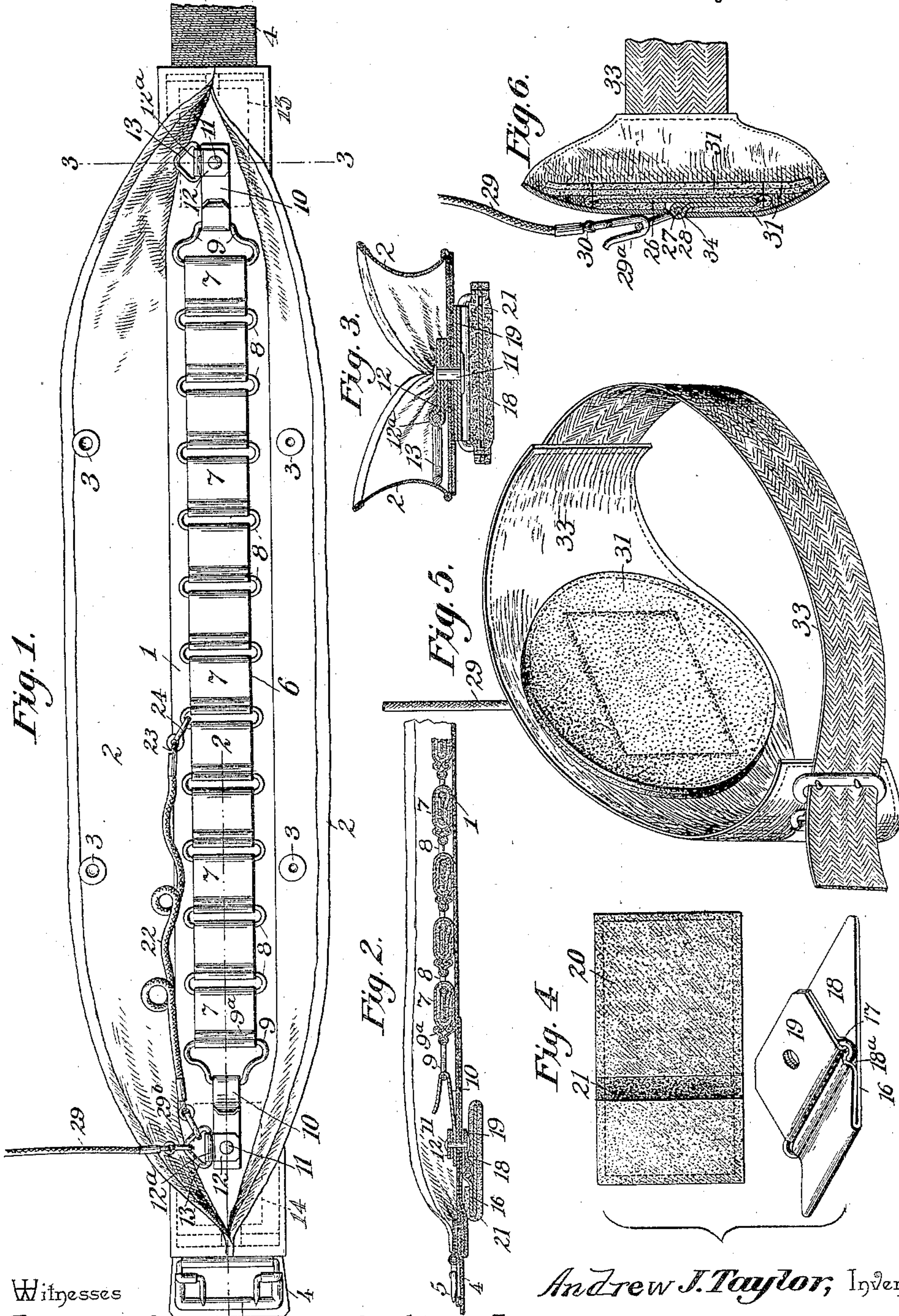


(No Model.)

A. J. TAYLOR.
ELECTRICAL BELT.

No. 604,806.

Patented May 31, 1898.



Witnesses
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UNITED STATES PATENT OFFICE.

ANDREW J. TAYLOR, OF VINELAND, NEW JERSEY.

ELECTRICAL BELT.

SPECIFICATION forming part of Letters Patent No. 604,806, dated May 31, 1898.

Application filed April 12, 1898. Serial No. 677,335. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. TAYLOR, a citizen of the United States, residing at Vineland, in the county of Cumberland and State of New Jersey, have invented a new and useful Electrical Belt, of which the following is a specification.

This invention relates to improvements in electrogalvanic belts designed for body-wear for therapeutical purposes; and the object in view is to provide an improved belt in which provision is made for varying the number of battery-cells to meet the demands of the nerve energy or force of the patient, to provide for the ready removal of an electrode-pad to moisten the same, and to enable different body-electrodes to be connected to the battery.

With these ends in view the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation with the flaps of the sheath opened and illustrating a cut-out for the battery attached to the belt and one conductor for a body-electrode also connected to one of the battery-electrodes. Fig. 2 is a longitudinal sectional view on the plane indicated by the dotted line 2 2 of Fig. 1. Fig. 3 is an enlarged transverse sectional view through one of the battery-electrodes on the plane indicated by the dotted line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of the battery-electrode with the fabric pad removed therefrom, said pad being shown adjacent to the electrode. Fig. 5 is a detail perspective view of one body-electrode, and Fig. 6 is a sectional view through the said body-electrode shown by Fig. 5.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

1 designates the sheath which carries the battery of my improved electrogalvanic belt. This sheath is preferably made of a waterproof fabric, or it may be made of ordinary fabric and lined with a waterproof fabric, and it is of sufficient length and width to in-

close within itself the battery. To provide for the insertion and removal of the battery, said sheath is constructed with the flaps 2, which are adapted to overlap one another, and said flaps are connected detachably by fasteners 3, of any approved construction, that serve to hold the flaps against displacement and to keep the battery inclosed within the sheath at all times. As is usual in the art, the sheath and battery contained therein are designed to be worn around the waist of the person, and to this end I provide the belt 4 in two sections attached to the respective ends of the sheath and provided with a suitable buckle 5.

The battery 6 consists of a series of cells 7, which are joined together by the intervening loops 8. The battery is similar in all substantial respects to other devices of its class—that is to say, its cells 7 have the zinc and copper elements or their equivalents separated by a pad which is adapted to be moistened with a suitable exciting fluid; but in my battery the loops 8, which join the series of cells flexibly together, have their ends extended or projected beyond the ends of the battery-cells for the ready attachment to either of said loops of a cut-out, presently described, by which the strength of the battery may be varied as desired.

The end cells of the battery are provided with the attaching-loops 9, one of said attaching-loops being connected with the copper element of one end cell, while the other attaching-loop is connected to a folded copper plate 9^a, which is interlocked with the zinc element of the other battery-cell at the opposite end of the belt.

Within the sheath 1 is arranged the hook-shaped plates 10, one end of each of which is securely attached to the back of the sheath by a transverse rivet 11, which passes through an extended end of the hook-plate for the purpose of leaving the hook free and unobstructed for the ready engagement therewith of the attaching-loop 9 at one end of the battery. Against the riveted end of the hook-plate is applied a clip 12, which consists of a piece of sheet metal, preferably copper, which is folded or doubled upon itself to form an eye 12^a in one edge of said clip, and the lapping parts of this folded metallic clip are united to the

hook-plate 10 by the rivet 11, which attaches said hook-plate to the sheath 1, whereby the clip 12 is held in place by the rivet 11, and it has electrical contact with the hook-plate 10.

5 In the folded edge 12^a of the clip-plate is loosely fitted an auxiliary loop 13, which is preferably of triangular form, and said auxiliary loop has a hinged or loose connection with the hook-plate, because it works freely
10 in the folded edge of the clip 12. This auxiliary loop having the hinged electrical connection with the hook-plate 10 is advantageous, because it provides for the attachment of the battery-cut-out conductor or a conductor leading to a body-electrode, or both of
15 the specified conductors may be connected with said auxiliary loop.

14 15 indicate the body-electrodes situated at the respective ends of the battery and also
20 forming the battery-electrodes. Each battery-electrode consists of a metallic plate which is doubled or folded upon itself, as at 16, to have its short-length lap under the long length of said plate, and in the free edge
25 of the underlapping short length 16 of the battery-electrode plate is formed an eye 17. Beneath the battery-electrode is arranged a hinge-plate 19, consisting of a suitable length of metal doubled and folded upon itself and
30 electrically connected with the hook-plate 10 by the rivet 11, which passes through the sheath 1 and is headed against the hinged plate 18, whereby the rivet 11 serves to attach the plate 10, the clip 12, and the hinged plate 18
35 to the sheath 1, and also to electrically connect the clip and the hinge-plate to the hook-plate. By folding the hinge-plate 18 upon itself its doubled free edge is formed with an eye 18^a, which is adjacent to the eye 17 of
40 the battery-electrode, and in these eyes are fitted the bars of the hinged loop 19, whereby the battery-electrode is joined to the rivet 11 of the battery-plate 10 by a hinged connection which enables the battery-electrode to
45 readily adjust itself and conform to the movement of the wearer and also allows the fabric pad 20, to be readily applied to the battery-electrode. This fabric pad 20 is made of felt or other absorbent material, which is provided
50 with a transverse slit 21 in one side and at an intermediate point of its length, and through this slit of the pad is adapted to be inserted the battery-electrode plate 14 or 15, according as the pad is applied to one plate
55 or the other. It will be understood that each electrode is provided with one of these pads, which is fitted removably to the electrode-plate for the purpose of moistening said pad and insuring better conductivity of the current from the battery to the person of the
60 wearer.

In connection with my belt constructed as described I employ a cut-out conductor 22, which is attached at one end to one of the
65 auxiliary loops 13 on one hook-plate 10 of the battery, while its other end is detachably connected to one of the battery-connecting

loops 8, said end of the conductor being adapted to be attached to either of the series of loops between any two of the cells of the
70 battery. In the course of my experiments and treatment of persons afflicted with nervous diseases I have found that the same battery strength in all cases will not secure advantageous results, and in some cases the patient will require the administration of a current of considerable strength, while in other
75 cases a current of moderate strength or of weak energy should be administered. The employment of the cut-out conductor 22 is advantageous, because it enables the strength of the battery to be regulated and to administer currents of different energy to the patients, according to their needs, and this end
80 is effected by changing the connection of the free end of the cut-out to include the desired number of cells in service in the battery. I prefer to employ a conductor which is covered with suitable insulation, and said conductor is doubled or folded upon itself at the
85 ends to provide the eyes 23, to which are loosely connected the hooks 24. The hook 24 at one end of the conductor is connected to the auxiliary loop 13 at one end of the battery, while the other hook 24, at the opposite
90 free end of the cut-out conductor, may be attached to any one of the hinged loops 8, between any desired pair of battery-cells.

In my improved belt I employ a series of terminal body-electrodes, one of which is
100 represented in Fig. 6. These terminal body-electrodes are adapted to be applied to different parts of the wearer's person, and the electrode is constructed to properly fit the part to which it is to be applied. In the example shown I have selected an electrode to
105 be applied to the ankle or arm of the person, and it consists of a metallic plate 26, which is doubled upon itself and formed with an eye 27, in which eye is loosely fitted a triangular attaching-loop 28. The conductor 29 is provided at one end with a hook 29^a, and at its opposite end a similar hook 29^b is provided for attachment to the auxiliary loop 13 at one
110 terminal of the battery. The hooks of the conductor 29 are loosely fitted in eyes 30 at the respective ends of said conductor, thus allowing free movement of said hooks on the conductor. The terminal body-electrode 26 is covered by a fibrous pad 31, which is slitted,
115 as at 32, to permit the ready removal of said pad for the purpose of moistening the same, after which the pad should be replaced on the conductor-plate or electrode 26. This terminal body-electrode is held in position on
120 the wearer by a strap 33, which is preferably made of waterproof fabric, through which is formed a transverse aperture 34 for the insertion of the conductor 29, and said waterproof length of the strap is equipped with a
125 fastening band and buckle of any suitable construction, as clearly shown by Figs. 5 and 6.

It is evident that changes in the form and

proportion of parts may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of this invention.

Having thus described the invention, what I claim is—

1. An electrogalvanic belt consisting of a sheath, hook-plates attached thereto, a battery detachably connected to said hook-plates within the sheath, and battery-electrodes arranged outside of the sheath and having a hinged connection with the sheath and electrical connection with the hook-plates in the battery, substantially as described.

2. An electrogalvanic belt comprising a sheath, hook-plates attached thereto, hinge-plates having electrical connection with said hook-plates, battery-electrodes hinged to the hinge-plates and provided with removable fibrous pads, and a battery detachably connected to the hook-plates within the sheath, substantially as described.

3. An electrogalvanic belt comprising a sheath, hook-plates attached thereto, battery-electrodes having hinged electrical connections with said hook-plates, fibrous pads removably fitted to said battery-electrodes, and a battery connected to said hook-plates, substantially as described.

4. An electrogalvanic belt consisting of a sheath, the hook-plates attached to the sheath,

the clips attached to the hook-plates to have electrical connection therewith by the same rivets which attach said hook-plates to the sheath, the loops having hinged connection with the clips, a battery having its cells joined by hinged loops and provided with attaching-loops that engage the hook-plates, and a conductor provided at its ends with hooks, one of said hooks engaging with an auxiliary loop and the other hook detachably connected to any one of the series of hinged loops between the battery-cells, substantially as described.

5. An electrogalvanic belt comprising a sheath, the hook-plates attached thereto, the clips also attached to the hook-plates, the auxiliary loops hinged to the clips, a battery with attaching-loops engaging with the hook-plates, a terminal conductor having a hook engaging with the auxiliary loop, and a terminal body-electrode attached to the terminal conductor and provided with a removable fibrous pad, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ANDREW J. TAYLOR.

Witnesses:

DEAN MACGEORGE,
HENRY S. ALVORD.